

CLAIMS

I/we claim:

- [c1] 1. An aircraft, comprising:
a fuselage portion;
a wing portion coupled to the fuselage portion;
a movable device having a first range of motion and a second range of motion different than the first range of motion;
a first actuator coupled to the movable device, the first actuator being positioned to move the movable device over the first range of motion;
a second actuator coupled to the movable device, the second actuator being positioned to move the movable device over the second range of motion; and
a control device coupled to at least one of the first and second actuators, the control device being configured to control actuation of the at least one of the first and second actuators.
- [c2] 2. The aircraft of claim 1 wherein the control device is configured to prevent actuation of at least one of the first and second actuators when a threshold condition is met.
- [c3] 3. The aircraft of claim 1 wherein the control device is configured to prevent actuation of the second actuator when the aircraft is airborne.
- [c4] 4. The aircraft of claim 1 wherein the second actuator is operatively coupled to both the first actuator and the movable device, and wherein actuation of the second actuator produces movement of both the first actuator and the movable device.

- [c5] 5. The aircraft of claim 1 wherein the second actuator is operatively coupled to both the first actuator and the movable device, and wherein actuation of the second actuator produces movement of the first actuator and the movable device as a unit.
- [c6] 6. The aircraft of claim 1 wherein the movable device includes a canard.
- [c7] 7. The aircraft of claim 1 wherein the first actuator has a first load capacity and wherein the second actuator has a second load capacity less than the first load capacity.
- [c8] 8. The aircraft of claim 1 wherein the at least a portion of the second range of motion extends beyond the first range of motion, and wherein the first actuator has a first load capacity, further wherein the second actuator has a second load capacity less than the first load capacity.
- [c9] 9. The aircraft of claim 1 wherein the first actuator is positioned to move the movable device over a first angular range of motion and the second actuator is positioned to move the movable device over a second angular range of motion with at least a portion of the second angular range of motion extending beyond the first angular range of motion.
- [c10] 10. The aircraft of claim 1 wherein the first actuator includes a leadscrew device and wherein the second actuator includes a linearly extendible link.
- [c11] 11. An aircraft, comprising:
 a fuselage portion;
 a wing portion coupled to the fuselage portion;

a canard movably coupled to the fuselage portion, the canard having a first range of motion and a second range of motion, with at least a portion of the second range of motion different than the first range of motion; a first actuator coupled to the canard to move the canard over the first range of motion, the first actuator having a first load capacity; and a second actuator coupled to the canard and the first actuator to move the canard and the first actuator over the second range of motion, the second actuator having a second load capacity less than the first load capacity.

[c12] 12. The aircraft of claim 11, further comprising a control device coupled to the first and second actuators, the control device being configured to selectively prevent actuation of the second actuator.

[c13] 13. The aircraft of claim 11 wherein the second actuator is sized to move the canard while the aircraft is stopped, further wherein the canard is subjected to an aerodynamic load during a portion of an operating envelope of the aircraft, and further wherein the second actuator has a maximum force capability that is less than the aerodynamic load.

[c14] 14. The aircraft of claim 11 wherein the fuselage includes an access door between an interior region of the fuselage and an exterior region of the fuselage, and wherein the first range of motion of the canard has a first limit and the second range of motion of the canard has a second limit different than the first limit, further wherein the canard allows greater access to the access door when at the second limit than when at the first limit.

[c15] 15. The aircraft of claim 11 wherein the first range of motion includes an angular range of from 15 degrees on a first side of a neutral position to about 25 degrees on a second side of the neutral position, and wherein the second range of

motion includes an angular range extending to about 40 degrees on the second side of the neutral position.

[c16] 16. An apparatus, comprising:
 a movable device having a first range of motion and a second range of motion different than the first range of motion;
 a first actuator coupled to the movable device to move the movable device over the first range of motion;
 a second actuator coupled to the movable device to move the movable device over the second range of motion; and
 a control device coupled to at least one of the first and second actuators, the control device being configured to control actuation of the at least one of the first and second actuators.

[c17] 17. The apparatus of claim 16 wherein the control device is configured to prevent actuation of at least one of the first and second actuators when a threshold condition is met.

[c18] 18. The apparatus of claim 16 wherein the second actuator is operatively coupled to both the first actuator and the movable device, and wherein actuation of the second actuator produces movement of both the first actuator and the movable device.

[c19] 19. The apparatus of claim 16 wherein the second actuator is operatively coupled to both the first actuator and the movable device, and wherein actuation of the second actuator produces movement of the first actuator and the movable device as a unit.

[c20] 20. The apparatus of claim 16 wherein the movable device includes an aircraft canard.

- [c21] 21. The apparatus of claim 16 wherein the first actuator has a first load capacity and wherein the second actuator has a second load capacity less than the first load capacity.
- [c22] 22. The apparatus of claim 16 wherein the first actuator is positioned to move the movable device over a first angular range of motion and the second actuator is positioned to move the movable device over a second angular range of angular motion, with at least a portion of the second angular range of motion extending beyond the first angular range of motion.
- [c23] 23. The apparatus of claim 16 wherein the first actuator includes a leadscrew device and wherein the second actuator includes a linearly extendible link.
- [c24] 24. An aircraft, comprising:
a fuselage portion;
a wing portion coupled to the fuselage portion;
a movable device having a first range of motion and a second range of motion different than the first range of motion;
first actuation means coupled to the movable device to move the movable device over the first range of motion;
second actuation means coupled to the movable device to move the movable device over the second range of motion; and
control means coupled to the first and second actuation means, the control means being configured to control actuation of at least one of the first and second actuation means.
- [c25] 25. The aircraft of claim 24 wherein the control means is configured to prevent actuation of at least one of the first and second actuation means when a threshold condition is met.

[c26] 26. The aircraft of claim 24 wherein the control means is configured to prevent actuation of the second actuation means when the aircraft is airborne.

[c27] 27. The aircraft of claim 24 wherein the second actuation means is operatively coupled to both the first actuation means and the movable device, and wherein actuation of the second actuation means produces movement of both the first actuation means and the movable device.

[c28] 28. The aircraft of claim 24 wherein the movable device includes a canard.

[c29] 29. The aircraft of claim 24 wherein the first actuation means has a first load capacity and wherein the second actuation means has a second load capacity less than the first load capacity.

[c30] 30. A method for manufacturing an aircraft, comprising:
coupling a movable device to a portion of an aircraft, the movable device having a first range of motion and a second range of motion different than the first range of motion;
coupling a first actuator to the movable device, the first actuator being positioned to move the movable device over the first range of motion;
coupling a second actuator to the movable device, the second actuator being positioned to move the movable device over the second range of motion; and
connecting a control device to the first and second actuators, the control device being configured to control actuation of at least one of the first and second actuators.

[c31] 31. The method of claim 30 wherein connecting a control device includes connecting a control device configured to prevent actuation of at least one of the first and second actuators when a threshold condition is met.

- [c32] 32. The method of claim 30 wherein connecting a control device includes connecting a control device configured to prevent actuation of at least one of the first and second actuators when the aircraft is airborne.
- [c33] 33. The method of claim 30 wherein coupling the second actuator includes coupling the second actuator to move both the first actuator and the movable device.
- [c34] 34. The method of claim 30 wherein coupling the movable device includes coupling a canard to a fuselage of the aircraft.
- [c35] 35. The method of claim 30 wherein coupling the first actuator includes coupling a first actuator having a first load capacity and wherein coupling the second actuator includes coupling a second actuator having a second load capacity less than the first load capacity.